

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of : **Confirmation No. 7668**
Mitsuaki OSHIMA et al. : Docket No. 2003_1117
Serial No. 10/635,468 : Group Art Unit 2631
Filed August 7, 2003 :
COMMUNICATION SYSTEM :

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

THE COMMISSIONER IS AUTHORIZED
TO CHARGE ANY DEFICIENCY IN THE
FEES FOR THIS PAPER TO DEPOSIT
ACCOUNT NO. 23-0975

Sir:

Pursuant to the provisions of 37 CFR 1.56, 1.97 and 1.98, Patentees request consideration of the references listed on attached form PTO-1449 and any additional information identified below in paragraph 3. A legible copy of each reference listed on the Form PTO-1449 is enclosed, except a copy is not provided for:

- ☒ each U.S. Patent and U.S. Patent application publication;
- ☐ each reference previously cited in the international application
PCT/_____; and/or
- ☐ each reference previously cited in prior parent application Serial No.
_____.

1a. ☒ This Information Disclosure Statement is submitted:

within three months of the filing date (or of entry into the National Stage) of the above-entitled application, or

before the mailing of a first Office Action on the merits or the mailing of a first Office Action after the filing of an RCE,

and thus no certification and/or fee is required.

1b. ☐ This Information Disclosure Statement is submitted

after the events of above paragraph 1a and prior to the mailing date of a final Office Action or a Notice of Allowance or an action which otherwise closes prosecution in the application, and thus:

(1) ☐ the certification of paragraph 2 below is provided, **or**

(2) ☐ the fee of \$180.00 specified in 37 CFR 1.17(p) is enclosed.

1c. ☐ This Information Disclosure Statement is submitted:

after the mailing date of a final Office Action or Notice of Allowance or action which otherwise closes prosecution in the application, and prior to payment of the issue fee, and thus:

the certification of paragraph 2 below is provided, and

the fee of \$180.00 specified in 37 CFR 1.17(p) is enclosed.

2. It is hereby certified

a. ☐ that each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the Statement, or

b. ☐ that no item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of the person signing the certification after making reasonable inquiry, was known to any individual designated in §1.56(c) more than three months prior to the filing of the Statement.

3. [X] Consideration of the following list of additional information (including any copending or abandoned U.S. application, prior uses and/or sales, etc.) is requested.

In the J.A.C. Bingham reference, pages 9 and 10 are advertising pages and have been omitted.

4. For each non-English language reference listed on the attached form PTO-1449, reference is made to:

- a. ☐ a full or partial English language translation submitted herewith,
- b. ☒ foreign patent office search reports (in the English language) submitted herewith,
- c. ☐ the concise explanation contained in the specification of the present application at page,
- d. ☒ the concise explanation set forth in the attached English language abstract,
- e. ☒ the concise explanation set forth below or on a separate sheet attached to the reference:

JPA H05-218978 corresponds to U.S. Patent, No. 5,243,629

JPA 2-141049 corresponds to U.S. Patent No. 4,940,954.

Japanese Patent No. 3-69295 corresponds to U.S. Patent No. 5,128,758

Japanese Patent No. 2-260726 corresponds to U.S. Patent No. 5,038,402

EP 0365431 corresponds to U.S. Patent No. 5,311,550

5. ☒ foreign patent office search reports citing one or more of the references is enclosed.

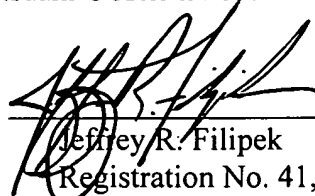
6. ☐ Statement Under 37 CFR 1.704(d)

Each item of information contained in the Information Disclosure Statement was first cited in any communication from a foreign Patent Office in a counterpart application, and this communication was not received by any individual designated in §1.56(c) more than thirty days prior to the filing of the Information Disclosure Statement.

Respectfully submitted,

Mitsuaki OSHIMA et al.

By



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Registration No. 41,471

Attorney for Patentees

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Washington, D.C. 20006-1021

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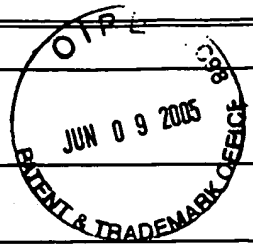
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June 9, 2005

FORM PTO 1449 (modified)

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICELIST OF REFERENCES CITED BY APPLICANT(S)
(Use several sheets if necessary)

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10/635,468APPLICANT
Mitsuaki OSHIMA et al.FILING DATE
August 7, 2003GROUP
2631

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	AA	5,311,550	5-10-94	Fouche et al.			
	AB	4,630,287	12-16-86	Armstrong			
	AC	4,271,527	6-2-81	Armstrong			
	AD	5,050,188	9-17-91	Dirr			
	AE	5,398,073	3-14-95	Wei			
	AF	5,452,015	9-19-95	Hulyalkar			
	AG	5,565,932	10-15-96	Citta et al.			
	AH	5,481,412	1-2-96	Bannai et al.			
	AI	3,909,721	9-30-75	Bussgang et al.			

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO	
	AJ	365431	4-25-90	EP				X
	AK	485105	5-13-92	EP			X	
	AL	92/14343	8-20-92	WO			X	
	AM	89/08366	9-8-89	WO			X	
	AN	31193	7-1-81	EP			X	

OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

	AO	Shinji Matsumoto et al., "200 Mb/s 16 QAM Digital Radio-Relay System Operating in 4 and 5 GHz Bands", Japan Telecommunications Review, January 1982, vol. 24, no. 1, pages 65-73.
	AP	M. Pecot et al., "Compatible Coding of Television Images, Part 2. Compatible System", Signal Processing Image Communication, October 2, 1990, no. 3, pages 259-268.
	AQ	Mitsuaki Oshima, "Constellation-Code Division Multiplex for Digital HDTV", IEEE, 1992, pages 1086-1092.

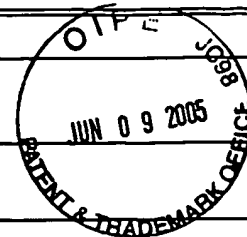
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	AA	4,227,152	10-7-80	Godard et al.			
	AB	4,525,846	6-25-85	Bremer et al.			
	AC	4,751,478	6-14-88	Yoshida			
	AD	4,891,806	1-2-90	Farias et al.			
	AE	4,903,125	2-20-90	Parker			
	AF	4,937,844	6-26-90	Kao			
	AG	5,164,963	11-17-92	Lawrence et al.			
	AH	5,555,275	9-1996	Oshima			
	AI	5,565,926	10-15-96	Bryan et al.			

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
	AJ	311188	4-12-89	EP			X
	AK	329158	8-23-89	EP			X
	AL	64-5135	1-10-89	JP			X
	AM	63-28145	2-5-88	JP			X
	AN	62-133842	6-17-87	JP			X

OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

	AO	Tricia Hill et al., "A Performance Study of NLA 64-State QAM", IEEE Transactions on Communications, vol. COM-31, June 1983, no. 6, pages 821-826.
	AP	Hideki Ishio et al., "A Proposal of a Carrier Digital Transmission System Using Multi-Level APSK", pages 1-20.
	AQ	Shanmugam, "Digital and Analog Communication Systems" 1979, p. 272.

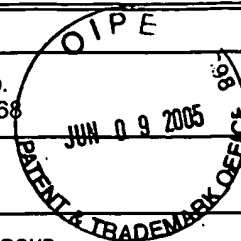
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	AA	5,105,442	4-14-92	Wei			
	AB	4,048,572	9-13-77	Dogliotti et al.			
	AC	5,282,019	1-25-94	Basile et al.			
	AD	5,311,547	5-10-94	Wei			
	AE	5,267,021	11-30-93	Ramchandran et al.			
	AF	5,038,219	8-6-91	Yamashita et al.			
	AG	5,087,975	2-11-92	Citta et al.			
	AH	5,086,340	2-4-92	Citta et al.			
	AI	5,243,629	9-7-93	Wei			

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		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
	AJ	53-137657	12-1-78	JP			X
	AK	282298	9-14-88	Europe			X
	AL	392538	10-17-90	Europe			X
	AM	490552	6-17-92	Europe			X
	AN	506400	9-30-92	Europe			X

OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

	AO	Khaled Fazel et al., Combined multilevel coding and multiresolution modulation, February 8, 1993, Pages 1081-1085
	AP	P. Hoeher et al., Performance of an RCPC-Coded OFDM-based Digital Audio Broadcasting (DAB) System, IEEE Global Telecommunications Conference "Globecom '91", December 2-5, 1991, Vol. 1 of 3, Pages 2.1.1 - 2.1.7
	AQ	K. M. Uz et al., Combined multiresolution source coding and modulation for digital broadcast of HDTV*, 1992, Pages 283-292

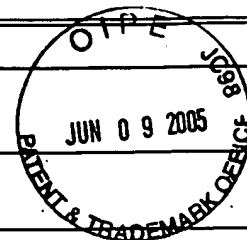
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	AA	5,142,353	8-25-92	Kageyama et al.			
	AB	5,197,061	3-23-93	Halbert-Lassalle et al.			
	AC	5,291,289	3-1-94	Hulyalkar et al.			
	AD	5,166,924	11-24-92	Moose			
	AE	4,940,954	7-10-90	Aubert et al.			
	AF	5,128,758	7-7-92	Azadegan et al.			
	AG	5,038,402	8-6-91	Robbins			
	AH	5,638,112	6-10-97	Bestler et al.			

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		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO	
	AI	448492	9-25-91	Europe				X
	AJ	485108	5-13-92	Europe			X	
	AK	525641	2-3-93	Europe			X	
	AL	540231	5-5-93	Europe			X	
	AM	531046	3-10-93	Europe			X	

OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

	AN	K. M. Uz et al., Multiresolution Source and Channel Coding for Digital Broadcast of HDTV, 1992, Pages 61-69.
	AO	Nambi Seshadri et al., Multi-Level Block Coded Modulations with Unequal Error Protection for the Rayleigh Fading Channel, Vol. 4, No. 3, May-June 1993, Pages 325-334.
	AP	William F. Schreiber, Spread-Spectrum Television Broadcasting, SMPTE Journal, August 1992, Pages 538-549.

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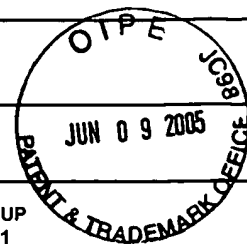
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include cop. this form with next communication to applicant.

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	AA	5,063,445	11-5-91	Nishizawa et al.			
	AB	5,819,000	10-6-98	Oshima			
	AC	5,999,569	12-7-99	Oshima			
	AD	5,892,879	4-6-99	Oshima			

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		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO	
	AE	7-99522	4-11-95	Japan			abstract	
	AF	7-79415	3-20-95	Japan			abstract	
	AG	5-75568	3-26-93	Japan			abstract	
	AH	86/07223	12-4-86	WO			X	
	AI	2 187 611	9-9-87	Great Britain			X	
	AJ	85/04541	10-10-85	WO			X	
	AK	4-196822	7-16-92	Japan			abstract	
	AL	2-166979	6-27-90	Japan			abstract	
	AM	64-74836	3-20-89	Japan			abstract	
	AN	53-108215	9-20-78	Japan			abstract	

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	AO	Martin Vetterli et al., Multiresolution Coding Techniques for Digital Television: A Review, Multidimensional Systems and Signal Processing, Volume 3, May 1992, Pages 161-187.
	AP	Ezio Biglieri et al., Introduction to Trellis-Coded Modulation with Applications, April 6, 1992, Pages 173-207.
	AQ	English Language Abstract of European Patent No. 93 30 7575

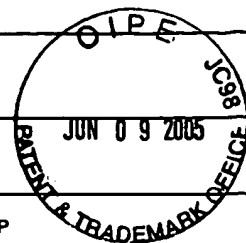
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	AA	4,636,876	1-13-87	Schwartz			
	AB	4,855,692	8-8-89	Kennard et al.			
	AC	4,873,701	10-10-89	Tretter			
	AD	4,958,360	9-18-90	Sari			
	AE	5,115,453	5-19-92	Calderbank et al.			
	AF	5,168,509	12-1-92	Nakamura et al.			
	AG	6,049,651	4-11-00	Oshima			
	AH	6,256,357	7-3-01	Oshima			
	AI	5,214,656	5-1993	Chung et al.			

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO	
	AJ	122805	10-24-84	EP			X	
	AK	63-180280	7-25-88	JP			abstract	
	AL	64-68144	3-14-89	Japan			abstract	
	AM	5-218978	8-27-93	Japan				X
	AN	3-69295	3-25-91	Japan				X

OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

	AO	Kazuhiko Nitadori, Synthesis of Multichannel Orthogonal VSB Signals by Quadrature Method, 1976 International Conference on Communications, June 14-16, 1976, Volume 1, Pages 3-25 - 3-29.
	AP	Thomas M. Cover, Broadcast Channels, IEEE Transactions on Information Theory, January 1972, Pages 2-14
	AQ	"Optimum Weighted PCM for Speech Signals", Sundberg, IEEE Transactions on Communications, Volume COM-26, No. 6, June 1978, Pages 872-881.

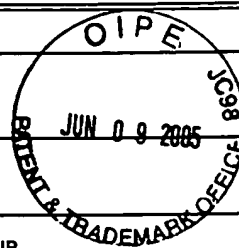
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	AA	5,170,413	12-8-92	Hess et al.			

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
	AB	57-39629	3-4-82	Japan			abstract
	AC	58-161547	9-26-83	Japan			abstract
	AD	63-180222	7-25-88	Japan			abstract
	AE	92/22162	12-10-92	WO			X
	AF	2-94814	4-5-90	Japan			abstract
	AG	61-70861	4-11-86	Japan			abstract
	AH	2-218279	8-30-90	Japan			abstract
	AI	2,095,435	5-10-92	Canada			X
	AJ	91/20137	12-26-91	WO			X
	AK	2-141049	5-30-90	Japan			X
	AL	2-195732	8-2-90	Japan			abstract
	AM	5-167633	7-2-93	Japan			abstract
	AN	2-260726	10-23-90	Japan			X
	AO	58-161427	9-26-83	Japan			abstract
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OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

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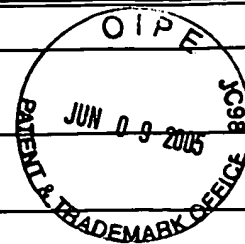
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	AA	3,824,548	7-16-74	Sullivan et al.			
	AB	3,959,726	5-25-76	Hinoshita et al.			
	AC	4,303,939	12-1-81	Stephens et al.			
	AD	4,303,941	12-1-81	Marti et al.			
	AE	4,309,726	1-5-82	Tanaka et al.			
	AF	4,535,352	8-85	Haskell			
	AG	4,564,858	1-14-86	Resch			
	AH	4,581,639	4-8-86	Judge			
	AI	4,769,819	9-6-88	Matsutani et al.			
	AJ	4,794,447	12-27-88	Tsinberg			
	AK	4,800,426	1-24-89	Glenn			
	AL	4,817,192	3-28-89	Phillips et al.			
	AM	5,007,088	4-9-91	Ooi et al.			
	AN	5,029,003	7-91	Jonnalagadda			
	AO	5,134,464	7-28-92	Basile et al.			

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	AP						

OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

AQ	Masafumi SAITO et al., "Bit Error Rate Characteristics of OFDM in Multipath Environment", 1991
AR	Ryutaro OHMOTO et al., " $\pi/4$ -shift QPSK Subcarrier Transmission", 1991

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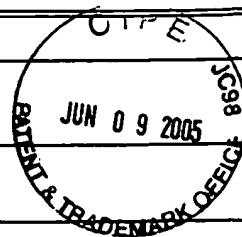
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	AB	5,377,051	12-27-94	Lane et al.			
	AC	5,400,084	3-21-95	Scarpa			
	AD	5,576,902	11-19-96	Lane et al.			
	AE	5,218,622	6-8-93	Fazel et al.			
	AF	5,561,468	10-1-96	Bryan et al.			
	AG	5,598,220	1-97	Citta et al.			
	AH	5,802,241	9-1-98	Oshima			
	AI						

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	AJ	3-48587	3-1-91	Japan			abstract
	AK						
	AL						
	AM						
	AN						

OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

	AO	J. A. C. Bingham, "Multicarrier Modulation for Data Transmission: An Idea Whose Time Has Come", IEEE Communications Magazine, Vol. 28, May 1990, pages 5-8 and 11-14
	AP	B. Hiroaki, "An Orthogonally Multiplexed QAM System Using the Discrete Fourier Transform", IEEE Transactions on Communications, Vol. Com-29, No. 7, July 1981, pages 982-989
	AQ	L. J. Cimini, Jr., "Analysis and Simulation of a Digital Mobile Channel Using Orthogonal Frequency Division Multiplexing", IEEE Transactions on Communications, Vol. Com-33, No. 7, July 1985, pages 665-675 and Annex

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